

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 101 of the	)	WT Docket No. 07-54
Commission's Rules to Modify	)	RM-11043
Antenna Requirements for the	)	
10.7-11.7 GHz Band	)	

**REPLY COMMENTS OF INTELSAT, LTD.**

Intelsat, Ltd. ("Intelsat")<sup>1</sup> hereby replies to comments filed in response to the Notice of Proposed Rulemaking ("NPRM") in the above-captioned proceeding.<sup>2</sup> In the NPRM, the Commission seeks comment on a proposal for changes to Part 101 of its rules that effectively would reduce the minimum antenna size for Fixed Service ("FS") stations in the 10.7-11.7 GHz band (the "11 GHz band") from 1.22 meters to 0.61 meters.

The parties supporting the proposed changes, however, fail to demonstrate that harmful interference to Fixed Satellite Service ("FSS") earth stations can be avoided. They simply assert that the changes will result in more efficient use of the spectrum by

---

<sup>1</sup> Intelsat, a leading FSS provider worldwide, is the licensee of 11 GHz band FSS earth stations and the operator of satellites that transmit on 11 GHz frequencies.

<sup>2</sup> Notice of Proposed Rulemaking, FCC 07-38 (Mar., 27 2007) ("NPRM").

FS operators. Because the 11 GHz band is a shared band, however, efficiency for one service must be weighed against the potential negative impact to the other. Because the smaller FS antennas are likely to cause harmful interference into FSS operations due to proliferation and increased pointing errors, they should not be allowed unless the band is segmented. To the extent they are allowed, the Commission should modify its proposed coordination rule because it does not address the power level that might be utilized by the smaller FS antennas when complying with the requirement to “reduce the predicted interference to levels no higher than would be predicted from antenna of 1.22 meters in diameter.”<sup>3</sup>

## **I. EFFICIENT USE OF SPECTRUM SHOULD NOT COME AT THE EXPENSE OF FSS OPERATIONS**

A number of commenters that support the Commission’s proposal argue that use of small antennas by FS systems would promote more efficient use of the spectrum by allowing greater deployment of FS antennas in the 11 GHz band.<sup>4</sup> What these

---

<sup>3</sup> *Id.* at Appendix A (proposed Section 101.103 (j)(2)).

<sup>4</sup> *See, e.g.*, Comments of Telecom Transport Management, Inc., WT Docket No. 07-54; RM-11043 (May 25, 2007), at 3 (“Two-foot antennas will permit TTM to use the 11 GHz band more efficiently and effectively.”) (“Telecom Transport Comments”); Comments of the Fixed Wireless Commc’ns Coal., WT Docket No. 07-54; RM-11043 (May 25, 2007), at 2 (“use of smaller antennas would permit more intensive use of the currently under-employed 11 GHz band.”); Comments of Alcatel-Lucent, WT Docket No. 07-54; RM-11043 (May 25, 2007), at 3 (“Thus, permitting the use of smaller antennas will encourage more efficient use of spectrum ... by allowing for the deployment of additional microwave links at space- and weight-limited facilities that were previously unavailable.”).

commenters appear to ignore, however, is that the 11 GHz band is a shared band. As such, “efficient use of the spectrum” cannot simply be viewed relative to FS operations only. Rather, the concept of spectrum efficiency must be viewed in light of the fact that both FS and FSS operations currently exist in the band. The public interest is not served when added “efficiency” for one service results in harm to the other service that shares the band.

As Intelsat points out in its comments, the proposed rule changes raise significant issues concerning interference to FSS operations.<sup>5</sup> The Satellite Industry Association (“SIA”) previously opposed the FiberTower petition for this rulemaking on the ground that multiple 11 GHz FS antennas in the aggregate may interfere with 11 GHz FSS earth stations.<sup>6</sup> As the proponents of rule change, FiberTower and its supporters should have the burden of demonstrating that harmful interference can be avoided. In their comments, however, none of FiberTower’s supporters made such a

---

<sup>5</sup> Comments of Intelsat, Ltd., WT Docket No. 07-54; RM-11043 (May 25, 2007), at 3-5 (“Intelsat Comments”).

<sup>6</sup> See Opposition of the Satellite Industry Assn., RM-11043 (Aug. 23, 2004), at 3-9.

demonstration. Nor have these supporters identified a demand for additional FS services in this band.<sup>7</sup>

Instead, as noted above, these commenters simply rely on the argument that spectrum efficiency for FS is a good thing. While such an argument may be compelling with respect to a band occupied only by FS operators, it is less so where, as here, that efficiency would come at the expense of FSS operations. The very underpinning of the concept of co-primary use is that each service operates in a manner that does not harm the other.

Indeed, not even all FS operators believe that small FS antenna proliferation is a good thing. In its comments, Union Telephone Company (“Union Telephone”) states that it opposes the potential proliferation of small, inexpensive antennas in the 11 GHz band because it could “inhibit access to and the utility of this band for high-capacity, medium- to long-distance microwave links needed by carriers operating in primarily rural areas.”<sup>8</sup> Union Telephone notes that if the FCC decides to allow the use of smaller

---

<sup>7</sup> By contrast, as Intelsat noted in its comments, increased FSS demand has resulted in a reduced supply of unused conventional Ku-band capacity, putting pressure on the 11 GHz band for FSS expansion capacity. Intelsat Comments at 6.

<sup>8</sup> Comments of Union Tel. Co., WT Docket No. 07-54; RM-11043 (May 25, 2007), at 1.

antennas, there should be “conditions on the use of the smaller antennas [that] might include limits on path length, reduced EIRPs, or use only in urban areas.”<sup>9</sup>

Alternatively, as Intelsat proposes in its comments, the Commission should consider segmenting the 11 GHz band.<sup>10</sup> Segmenting the band between FS and FSS uses as Intelsat proposes largely will resolve the FS/FSS interference issue, thereby allowing each service to use spectrum more efficiently without causing harm to the other service.

## **II. POINTING ERRORS ARE MORE LIKELY WITH SMALLER ANTENNAS**

A few commenters challenge the point raised earlier by SIA, and reiterated by Intelsat in its comments to the NPRM, that smaller antennas would be subject to larger pointing errors.<sup>11</sup> Intelsat agrees with Comsearch’s point that it is in the interest of FS users to achieve the best antenna alignment possible. However, most methods used for aligning antennas rely on maximizing the received signal. Because smaller antennas

---

<sup>9</sup> *Id.* at 4.

<sup>10</sup> Intelsat Comments at 5-7.

<sup>11</sup> *See, e.g.*, Telecom Transport Comments at 6 (“TTM does not believe there is an increased risk of interference because of increased difficulty in aligning the smaller, two-foot antennas.”); Comments of Ericsson Inc., WT Docket No. 07-54; RM-11043 (May 25, 2007), at 8 (“The Satellite Industry Association (“SIA”) contends in its Opposition to FiberTower’s Petition for Waiver, that smaller Antennas [sic] increase the incidence of pointing errors. SIA’s claims are unsupported by fact.”)(citation omitted); Comments of Comsearch, WT Docket No. 07-54; RM-11043 (May 25, 2007), at 6 (“It is in the interest of the FS user to accurately align the antennas to maximize path performance, and standard alignment procedures are highly accurate even for the proposed small antennas.”) (“Comsearch Comments”).

will have flatter gain patterns, they will necessarily be more difficult to align accurately.

Although it believes the overall effect to be small, Comsearch recognizes this fact.<sup>12</sup>

### **III. THE COMMISSION SHOULD MODIFY ITS PROPOSED COORDINATION RULE**

The Commission's proposed coordination rule states that an FS or FSS applicant that predicts received interference from a licensee or prior applicant using an antenna smaller than 1.22 meters in diameter "can require the licensee or prior applicant to reduce the predicted interference to levels no higher than would be predicted from antenna of 1.22 meters in diameter."<sup>13</sup> The proposed rule does not specify, however, whether the interference levels that would be predicted from an antenna of 1.22 meters are to be calculated using the power authorized for the 0.61 meter antenna or the power that would lead to the same EIRP as authorized for the 0.61 meter antenna. Accordingly, there is nothing in the rule that ensures that operators of small antennas will not utilize higher power to compensate for their smaller main beam gain.

This concern was recognized by Comsearch, which states in its comments that "the proposed rules would allow high power transmitters to be connected to small

---

<sup>12</sup> Comsearch Comments at 6 ("Nevertheless, to the extent the antennas are inadvertently misaligned, error may be introduced into the interference calculations. If a certain loss of gain or signal power is necessary before an FS user would notice antenna misalignment, the corresponding error angle would be greater for a smaller antenna.").

<sup>13</sup> NPRM at Appendix A (proposed Section 101.103(j)(2)).

antennas to increase link range.”<sup>14</sup> Comsearch thus proposes that “there should be an EIRP limitation to compel usage of larger antennas before high transmitter power for longer links.”<sup>15</sup> Although Comsearch’s proposal is a step in the right direction, even if an appropriate EIRP limit is set for 0.61 meter antennas, the rule ambiguity described above would remain.

Intelsat has proposed a band segmentation approach because of its concerns, as noted above, with respect to increased interference that would result from aggregation effects from the deployment of a much larger number of FS transmit stations and pointing errors. Regardless of whether the Commission agrees to segment the band, however, if 0.61 meter FS antennas are to be allowed in any portion of the 11 GHz band without increasing single-entry interference as compared to that caused by 1.22 meter antennas, proposed Section 101.103(j)(2) should be modified to read as indicated below

(new text in italics):

“A Fixed Service applicant attempting to frequency coordinate an antenna of 1.22 meters in diameter or larger, or an applicant for a Fixed Satellite Service earth station, that predicts received interference from a licensee or prior applicant using an antenna smaller than 1.22 meters in diameter, can require the licensee or prior applicant to reduce the predicted interference to levels no higher than would be

---

<sup>14</sup> Comsearch Comments at 4.

<sup>15</sup> *Id.*

predicted from antenna of 1.22 meters in diameter *producing the same on-axis EIRP as that of the 0.61 meter antenna under consideration.*"

## CONCLUSION

As Intelsat states in its comments, SIA has presented evidence that the use of 0.61 meter antennas by 11 GHz band FS licensees could harm existing FSS operations. The Commission should not ignore this consequence simply because FS operators claim that their use of the spectrum will be "more efficient." Moreover, as Intelsat proposes in its comments, when both FS and FSS needs are considered, more efficient use of the spectrum would be achieved through segmentation of the 11 GHz band. Specifically, FSS use should be primary in the 10.95-11.20 and 11.45-11.70 GHz bands, while FS use should be primary in the remaining 500 MHz, provided a limited number of FSS gateway earth stations -- current and future -- used as feeder links for Mobile Satellite Services are allowed to operate in the FS band segment. In addition to largely resolving the interference issues, segmenting the band would address changed circumstances affecting FS and FSS stations and would maximize spectrum efficiency for both FS and FSS operations.



Respectfully submitted,

**INTELSAT, LTD.**

By: /s/ Kalpak S. Gude  
Kalpak S. Gude  
Vice President and Deputy General Counsel  
Intelsat Corporation  
3400 International Drive, NW  
Washington, DC 20008  
(202) 944-7204

June 21, 2007